

## INTRODUCTION

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**PRO-SEAL 201** is a higher modulus one component polyurethane adhesive / sealant offered in viscous paste form which, when fully cured, becomes a highly durable elastomer. It offers reduced turnover times as a result of being slightly accelerated.

## USE

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### As elastic adhesive:

Thick-layer bonding, highly durable to expansion / contraction, with vibration dampening & noise reduction properties. Typical applications include deck bedding, panel bonding, multihull keel joining.

### As elastic sealer against water ingress:

Especially suitable for large enclosed spaces with no air circulation. Typical application, monohull keel refit / resealing.

## SUITABLE SUBSTRATES

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- GRP / FRP,
- gelcoat,
- wood,
- glass & organic glass,
- aluminum, stainless steel and other metals,
- anti-corrosive & protective coatings.

## FEATURES

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- One component,
- cures with humidity,
- faster setting, reduced tack-free / handling time,
- accelerated, suitable for application in confined spaces with no air circulation, e.g. keel joints,
- also for vertical or overhead application,
- strong adhesion properties without priming,
- no bubbling during curing,
- void filling capacity due to slight expansion, about 5%,
- once cured, remains elastic down to -40 °C,
- resistant to microorganisms and fungus,
- available in black & grey.

PRO-SEAL 201 is compatible with most anti-corrosive coatings. In fact, such coatings will limit the spread of corrosion under the adhesive layer, known as 'bond line corrosion', and will thus improve long term adhesion strength.

## LIMITATIONS

Not suitable for:

- Caulking of outdoor decks,
- Application on substrates subject to stress cracking,
- continuous exposure to fuels, solvents, acids and caustic substances,
- continuous exposure to high temperatures.

Newly fabricated polyester or vinylester GRP parts require a long time, even weeks, to fully cure. During this time, a degree of shrinkage is expected. If such a part is bonded, before full cure, it is possible that the joint will be distorted, as shrinking proceeds, and preloaded with unnecessary stresses. In such cases, it is advised that curing is allowed to proceed before assembly or, alternatively, that parts are heat-treated (tempering) in order to stabilize the shrinking process.

Similarly, in the case of newly applied thermoplastics and coatings containing solvents, which haven't been fully diffused, the contact area may be compromised as these proceed to be released.

## CURING SPEED

An indicative tack-free time is about 30 minutes at 15 °C and 65% RH.

Curing progress in mm from uncovered surface to substrate:

| PRO-SEAL 201: Curing speed. |                    |
|-----------------------------|--------------------|
| days                        | 15 °C - 65% RH, mm |
| 0.5                         | 1.0                |
| 1                           | 2.2                |
| 1.5                         | 2.5                |
| 2                           | 3.0                |
| 3                           | 4.0                |
| 4                           | 4.8                |
| 5                           | 5.5                |
| 6                           | 6.0                |

*[Determined in controlled laboratory conditions. To be used as a guide only.]*

The above table can help you estimate curing and handling times. However, the general setup needs to be taken into account when estimating these. It is important to visualize how humidity will be able to reach the full depth of the application. Polyurethane sealants cure primarily with humidity. While one can expect a layer 2 mm deep to cure in 24 hours, a 2 mm bond layer between two panels will require multiple days to cure fully as the humidity now has to reach the center of the layer through the sealant from the edges of the bond layer. Polymerization speed slows down with depth, as shown in the table above. When a sealant is applied in such closed inaccessible setups, if possible, leave empty strips every 20 mm.

Under conditions of low humidity, curing can be assisted by spraying a very thin mist of water.

## PRODUCT DATA

| PRO-SEAL 201: Properties.                                       |                       |
|-----------------------------------------------------------------|-----------------------|
| Specific weight<br><i>uncured, approx., ISO 2811</i>            | 1.9 kg/lt             |
| Service temperature                                             | -40 to 80 °C          |
| Hardness<br><i>Shore A, ISO R868</i>                            | 60                    |
| Max elongation<br><i>EN-ISO-527-3</i>                           | 600%                  |
| Modulus<br><i>100% elongation, EN-ISO-527-3</i>                 | 0.8 N/mm <sup>2</sup> |
| Resilience<br><i>DIN 52458</i>                                  | 80%                   |
| Thermal Resistance<br><i>100 days @ 80 °C, EOTA TR011</i>       | passed                |
| AWT<br><i>2,000 hours, ASTM G53</i>                             | passed                |
| Hydrolysis, H <sub>2</sub> O<br><i>30-day cycle @ 60-100 °C</i> | elasticity unaffected |
| Hydrolysis, HCl<br><i>pH=2.0, 10 days @ RT</i>                  | elasticity unaffected |
| Hydrolysis, 8% KOH<br><i>15 days @ 50 °C</i>                    | elasticity unaffected |

## SURFACE PREPARATION

The application surface must be free of dust, salt, water, grease, oil, wax, silicone, rust and other contaminants deposited over time or during the repair process. Cured sealants and adhesives must be removed.

In the case of oily / greasy substrates, use **PRO-CLEAN X**. Ensure that no residues remain, either from the initial contaminants or from the cleaner. Note that new or refurbished metal parts most often have an

oily/greasy layer, often imperceptible, for protection or as a result of manufacturing and should therefore be cleaned accordingly.

For surfaces free of grease and oils, the recommended way of cleaning it is by dry cloth assisted by vacuum dust extractor or compressed air (free of compressor oils). Use a large cloth, apply very lightly and change sides continuously so as to remove dust instead of pressing it on the substrate. Low grade grinding will help with more persistent residues and improve adhesion. Avoid using wet or waxed tissues.

Do not apply on substrates lacking cohesion. In such cases, unsound parts of the application surface must be removed and, if required, sealed using a primer from the PRO-PRIME 100, 200 or 900 series.

While priming is usually not required, it often increases adhesion strength further. The recommended primer for PRO-SEAL products is PRO-PRIME 901. N.B.: It is important to wait for solvents in primers to fully evaporate before application.

When using as adhesive, you are advised to prepare suitable spacers in order to ensure a uniform thickness bondline of proper size. In case these cannot be removed after curing, they should have a similar hardness to the cured PRO-SEAL 201. Cutting pieces of cured PRO-SEAL 201 is the recommended option.

Use masking tape to limit the area of application (to be removed after application before the skinning phase of curing).

## APPLICATION

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Cut the nozzle at the point where its size matches the required bead size:

- For joint sealing, extrude a round bead and either tool using spreader/ shaped tab / finger with disposable glove and soap solution, or, once fully cured, use knife to cut off the excess.
- For adhesion applications, a triangular bead is usually recommended.

Extrude the bead in such a way that you don't entrap air in the layer. When sealing fittings, it is advisable to slightly tighten them (1/4 turn) again after the first day.

If using as adhesive, please refer to our "**General Notes on Elastic Bonding**" guide.

## LONG-TERM PERFORMANCE: STRESS LOADS, CHEMICALS, CORROSION, AGING, ETC.

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The main factors affecting the service life of PRO-SEAL 201 are:

- The joint design and the existence of continuous stresses,
- long-term high temperature exposure,
- long-term exposure to chemicals.

The time factor is critical. While short to medium term exposure to loads, high temperatures and chemicals can be expected, long-term exposure to these will accelerate the aging process of the sealant. In the case

of a new build, the preferred course of action for avoiding such long-term exposures would be to re-design the joint. For existing builds, the inspection and maintenance schedule has to be adjusted accordingly.

PRO-SEAL 201 has very good resistance to fresh and salt water, and maintenance products, e.g. low acidity cleaning agents and oils. Exposure to fuels, solvents, acids and caustic substances should be avoided.

## PACKAGING

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600 ml soft aluminium tube.

15 x 600 ml boxes.

## STORAGE & SHELF LIFE

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At least 12 months from the date of manufacture in its original sealed packaging. Store away from excessive heat and humidity.

## QUALITY CONTROL

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PRO-SEAL 201 is produced under ISO 9001/14001/45001.

## SAFETY

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Use personal protection. Avoid any physical contact with the uncured substance.

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